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METHOD FOR POLISHING HARD SURFACES

Field of the Invention

The present invention relates to a method for polishing a hard surface. The method includes applying a composition including a glycol and/or alkoxylate to a hard surface to be polished.

Background of the Invention

Metal surfaces have long required polishing, in particular, in the food service and health care industry. Recently, more and more home kitchen appliances have begun to use stainless steel as a facing. Unfortunately, the stainless steel readily shows grease smudges, fingerprints, etc. and requires polishing to restore its shine.

Current polishes include oil, such as mineral, vegetable, or silicon oil as the polishing agent. Such polishes have several disadvantages. For instance, any overspray of the polish onto the floor presents a slip hazard due to the oil polishing agent. Also, due to the low water solubility of the oil, any clean up of the polish is difficult. In addition, mineral and silicon oils are undesirable on surfaces that may come in contact with food, such as steel sinks in restaurants. Vegetable oils oxidize on a metal surface causing the metal surface to darken over time.

There remains need for a method for polishing that does not employ an oil based polish.

Summary of the Invention

The present invention relates to a method for polishing a hard surface. The method includes applying a composition including a glycol and/or alkoxylate to a hard surface to be polished.

In an embodiment, the method of polishing a hard surface includes applying a composition including a glycol and/or alkoxylate and a source of alkalinity.

In an embodiment, the method of polishing a hard surface includes applying a composition including an glycol and/or alkoxylate, a wetting agent, a source of alkalinity, and a sequestrant.

In another embodiment, the glycol is represented by Formula I: $HO(R\text{-}CHCH_2O)_nH$, where R is an alkyl group containing 1 to 3 carbon atoms and n is 1 to 10,000.

In another embodiment, the method of polishing a hard surface includes applying a composition including an ethoxylate propoxylate.

In another embodiment, the method of polishing includes removing soil.

Detailed Description of the Invention

Definitions

As used herein, weight percent (wt-%), percent by weight, % by weight, and the like are synonyms that refer to the concentration of a substance as the weight of that substance divided by the weight of the composition and multiplied by 100.

As used herein, the term "about" modifying the quantity of an ingredient in the compositions of the invention or employed in the methods of the invention refers to variation in the numerical quantity that can occur, for example, through typical measuring and liquid handling procedures used for making concentrates or diluting concentrates in the real world; through inadvertent error in these procedures; through differences in the manufacture, source, or purity of the ingredients employed to make the compositions or carry out the methods; and the like. Whether or not modified by the term "about", the claims include equivalents to the quantities.

As used herein "polishing" means imparting smoothness, gloss, surface protection, or a decorative finish on a hard surface.

Method of Polishing

The present invention relates to a method of polishing a hard surface. The method includes applying a composition including a glycol and/or an alkoxylate to a hard surface. Applying the composition to the hard surface can include spraying (e.g., nonaerosol spraying), wiping, rubbing, foaming on, or any other form of contacting the composition with

the hard surface to be polished. In an embodiment, applying can include spraying (e.g., nonaerosol spraying), wiping, foaming, or rubbing.

Suitable hard surfaces that can be polished according to the present method include stainless steel, aluminum, copper, vinyl, plastic, metal, rubber, formica, wood, mild steel, melamine, brass, ceramic, and stone. In an embodiment, the object or surface polished by the present method can be opaque or translucent. In an embodiment, the object or surface polished by the present method can be opaque. Exemplary appliances or other devices requiring polishing include refrigerators, stoves, dishwashers, elevators, doors, faucets, countertops, sinks, and the like.

The present invention can also include diluting a concentrate to form the composition that is applied to the hard surface. Suitable diluents include water, glycol ether, ethanol, propanol, and isopropanol. In an embodiment, the concentrate can be diluted with water. In certain embodiments, the composition contains about 10 % by weight to about 90 % by weight diluent, about 20 % by weight to about 70 % by weight diluent, about 90 % by weight to about 99.5 % by weight diluent, and about 30 % by weight to about 60 % by weight diluent. The diluent can be present at any of these amounts not as part of a range and/or at any of these amounts not modified by about.

The present invention can also include removing soil. Applying the composition to a hard surface can remove soil. The composition can include components that are suitable in removing soil from a hard surface. Such soil can include oil, grease, dirt, contaminant, bacteria, food, body fluids, mixture thereof, or the like. In an embodiment, the soil includes oil, grease, or dirt.

Polishing Composition

The composition employed in the present method includes a polishing agent. The composition can also include a cleaning agent or any of a variety of other components. The composition can be in the form of liquid, gel, paste, solid, powder, or foam.

Polishing agent

The polishing agent can include a glycol such as an alkylene glycol. Suitable alkylene glycols include those represented by formula I:

$$HO(R\text{-}CHCH_2O)_nH \qquad (I)$$

In formula I, R can be, for example, an alkyl group containing 1 to 3 carbon atoms. The alkyl group can be straight or branched chain. In certain embodiments, n can be 1 to 10,000, 1 to 1,000, 1 to 100, or 1 to 10. An exemplary polishing agent is propylene glycol and any of its oligomers. Propylene glycol and dipropylene glycol are considered safe according to government (e.g. FDA or USDA, listed on FDA's Generally Recognized As Safe list) rules and regulations. Preferred polishing agents do not include glycol ether.

The polishing agent can include an alkoxylate. In an embodiment, the alkoxylate includes a C3 - C6 alkoxy substituent. Exemplary alkoxylates that can be used according to the invention include surfactant including nonionic block copolymers, alcohol alkoxylates, and alkoxylates having additional functionality including alkyl polyglycosides, zwitterionics, anionics, and mixtures thereof. Additional exemplary polishing agents include alcohol propoxylates; alkylphenol ethoxylate-propoxylates; alkoxylated derivatives of carboxylic acids, amines, amides and esters; and ethylene oxide-propylene oxide copolymers. Exemplary ethylene oxide-propylene oxide polymers include those available under the names Pluronic, Pluronic R, Tetronic, and Tetronic R from BASF.

Exemplary nonionic block copolymer surfactants include polyoxyethylene-polyoxypropylene block copolymers. Exemplary polyoxyethylene-polyoxypropylene block copolymers that can be used have the formulae:

$$(EO)_x(PO)_y(EO)_x$$

$$(PO)_y(EO)_x(PO)_y$$

$$(PO)_y(EO)_x(PO)_y(EO)_x(PO)_y$$

wherein EO represents an ethylene oxide group, PO represents a propylene oxide group, and x and y reflect the average molecular proportion of each alkylene oxide monomer in the overall block copolymer composition. Preferably, x is from about 10 to about 130, y is about 15 to about 70, and x plus y is about 25 to about 200. It should be understood that each x and y in a molecule can be different. The total polyoxyethylene component of the block copolymer is preferably at least about 20 mol-% of the block copolymer and more preferably at least about 30 mol-% of the block copolymer. The material preferably has a molecular weight greater than about 1,500 and more preferably greater than about 2,000. Although the exemplary polyoxyethylene-polyoxypropylene block copolymer structures provided above

have 3 blocks and 5 blocks, it should be appreciated that the nonionic block copolymer surfactants according to the invention can include more or less than 3 and 5 blocks. In addition, the nonionic block copolymer surfactants can include additional repeating units such as butylene oxide repeating units. Furthermore, the nonionic block copolymer surfactants that can be used according to the invention can be characterized heteric polyoxyethylene-polyoxypropylene block copolymers. Exemplary sheeting agents that can be used according to the invention are available from BASF under the name Pluronic, and an exemplary EO-PO co-polymer that can be used according to the invention is available under the name Pluronic N3.

The polishing agent can be present in the composition at about 0.025 to about 90 wt-%, about 0.1 to about 10 wt-%, about 0.1 to about 70 wt-%, about 0.5 to about 2 wt-%, about 0.025 to about 4 wt-%, about 10 to about 90 wt-%, about 25 to about 90 wt-%, about 30 to about 70 wt-%, about 40 to about 60 wt-%, about 20 to about 60 wt-%, or about 45 to about 55 wt-%. The polishing agent can be present at any of these amounts not as part of a range and/or at any of these amounts not modified by about.

Additional Components

The composition may include additional components. Exemplary additional components include sequestrant, source of alkalinity, acid, wetting agent, organic solvents, and aesthetic modifiers such as dye or fragrance.

Sequestrant/Builder

The composition employed in the present method can include a sequestrant or builder. In general, a sequestrant is a molecule capable of coordinating (i.e., binding) the metal ions commonly found in natural water to prevent the metal ions from interfering with the action of the other ingredients of the composition. For a further discussion of chelating agents/sequestrants, see Kirk-Othmer, Encyclopedia of Chemical Technology, Third Edition, volume 5, pages 339-366 and volume 23, pages 319-320.

A variety of sequestrants or builders can be used in the composition, including, for example, organic phosphonate, aminocarboxylic acid, condensed phosphate, inorganic

builder, polymeric polycarboxylate, mixtures thereof, or the like. Such sequestrants and builders are commercially available.

Suitable condensed phosphates include sodium and potassium orthophosphate, sodium and potassium pyrophosphate, sodium and potassium tripolyphosphate, sodium hexametaphosphate, and the like, e.g., the sodium salt, e.g., of pyrophosphate. A condensed phosphate may also assist, to a limited extent, in solidification of the composition by fixing the free water present in the composition as water of hydration.

Polymeric polycarboxylates that can be used according the invention can include a polymer and/or an oligomer containing pendant carboxylic acid groups and/or pendant carboxylic acid salt groups. It should be understood that the term "pendant" refers to the groups being present other than in the polymer backbone and/or oligomer backbone. The dispersants can be available as homopolymers or co-polymers or as homo-oligomers or co-oligomers. Exemplary sequestrants include, for example, poly(acrylic acid), poly(maleic acid/olefin) copolymer, poly(acrylic acid/maleic acid) copolymer, polymethacrylic acid, acrylic acid-methacrylic acid copolymers, hydrolyzed polyacrylamide, hydrolyzed polymethacrylamide, hydrolyzed polyamide-methacrylamide copolymers, hydrolyzed polyacrylonitrile, hydrolyzed polymethacrylonitrile, hydrolyzed acrylonitrile-methacrylonitrile copolymers, polymaleic acid, polyfumaric acid, copolymers of acrylic and itaconic acid, phosphino polycarboxylate, and the like. An exemplary sequestrant is maleic anhydride/olefin copolymer. An exemplary maleic anhydride/olefin copolymer is available from Rohm & Haas under the name Acusol 460N. An exemplary polyacrylic acid sodium salt having a molecular weight of about 4,500 is available from Rohm & Haas under the name Acusol 434N. An exemplary acrylic acid/maleic acid co-polymer having a molecular weight of about 3,200 is available from Rohm & Haas under the Acusol 448. An exemplary acrylic acid/maleic acid sodium salt having a molecular weight of about 70,000 is available from Rohm & Haas under the name Acusol 479N. An exemplary acrylic acid/maleic acid sodium salt having a molecular weight of about 40,000 is available from Rohm & Haas under the name Acusol 505N.

In an embodiment, the present composition includes as sequestrant or builder condensed phosphate and polyacrylate, or another polymer, for example, sodium tripolyphosphate and polyacrylate. In an embodiment, sodium salts of condensed phosphates

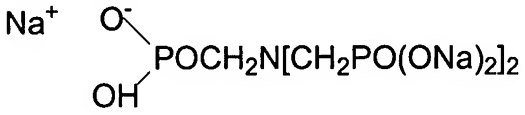
are preferred to the corresponding potassium salts. In an embodiment, the present composition includes as sequestrant or builder polycarboxylates, such as polyacrylate and/or phosphino polycarboxylate.

The builder can include an organic phosphonate, such as an organic-phosphonic acid and alkali metal salts thereof. Some examples of suitable organic phosphonates include:

1-hydroxyethane-1,1-diphosphonic acid: $CH_3C(OH)[PO(OH)_2]_2$;

aminotri(methylenephosphonic acid): $N[CH_2PO(OH)_2]_3$;

aminotri(methylenephosphonate), sodium salt



2-hydroxyethyliminobis(methylenephosphonic acid): $HOCH_2CH_2N[CH_2PO(OH)_2]_2$;

diethylenetriaminepenta(methylenephosphonic acid):

$(HO)_2POCH_2N[CH_2CH_2N[CH_2PO(OH)_2]_2]_2$;

2-phosphonobutane-1, 2, 4-tricarboxylic acid;

diethylenetriaminepenta(methylenephosphonate), sodium salt: $C_9H_{(28-x)}N_3Na_xO_{15}P_5$ (x=7);

hexamethylenediamine(tetramethylenephosphonate), potassium salt: $C_{10}H_{(28-x)}N_2K_xO_{12}P_4$ (x=6);

bis(hexamethylene)triamine(pentamethylenephosphonic acid):

$(HO_2)POCH_2N[(CH_2)_6N[CH_2PO(OH)_2]_2]_2$; and

phosphorus acid H_3PO_3; and other similar organic phosphonates, and mixtures thereof.

Suitable organic phosphonates include PBTC, ATMP, and DTPMP.

The sequestrant can be or include aminocarboxylic acid type sequestrant. Suitable aminocarboxylic acid type sequestrants include the acids or alkali metal salts thereof, e.g., amino acetates and salts thereof. Some examples include the following:

N-hydroxyethylaminodiacetic acid;

hydroxyethylenediaminetetraacetic acid, nitrilotriacetic acid (NTA);

ethylenediaminetetraacetic acid (EDTA);

N-hydroxyethyl-ethylenediaminetriacetic acid (HEDTA);

diethylenetriaminepentaacetic acid (DTPA); and

alanine-N,N-diacetic acid;

and the like; and mixtures thereof.

Suitable aminocarboxylates include ethylenediamine tetraacetic acid (EDTA), diethylenetriamine pentaacetic acid (DTPA), their alkali metal salts, and mixtures thereof.

The sequestrant/builder can be present in a use dilution of the composition at about 0 to about 1 wt-%, about 0.01 to about 0.5 wt-%, about 0.01 to about 0.04 wt-%, about 0.005 to about 0.08 wt-%, about 0.0025 to about 0.1 wt-%, or about 0.005 to about 0.2 wt-%. The polishing agent can be present at any of these amounts not as part of a range and/or at any of these amounts not modified by about.

Source of Alkalinity

The composition employed in the present method can include one or more alkalinity sources, which can enhance polishing of a hard surface and improve soil removal performance of the composition. The source of alkalinity can include an alkali metal salt, such as alkali metal carbonate, alkali metal hydroxide, alkali metal silicate (e.g., metasilicate), or the like; metal borate, such as sodium or potassium borate, and the like; alkanolamines and amines; inorganic alkalinity source, such as alkali metal hydroxide or silicate (e.g., metasilicate), or the like; and other like alkaline sources. The choice and the quantity of alkalinity source can be sufficient to render the composition alkaline. An exemplary source of alkalinity is monoethanolamine.

Suitable alkali metal hydroxides include, for example, sodium or potassium hydroxide, e.g., sodium hydroxide. An alkali metal hydroxide may be added to the composition in a variety of forms, including for example in the form of solid beads, dissolved in an aqueous solution, or a combination thereof. Alkali metal hydroxides are commercially available as a solid in the form of prilled solids or beads having a mix of particle sizes ranging from about 12-100 U.S. mesh, or as an aqueous solution, as for example, as a 50 wt-% and a 73 wt-% solution.

Examples of useful alkaline metal silicates include sodium or potassium silicate (with a $M_2O:SiO_2$ ratio of 1:2.4 to 5:1, M representing an alkali metal) or metasilicate. In an embodiment, the alkaline metal silicate includes sodium metasilicate.

In certain embodiments, the alkaline source includes a salt of metasilicate, of silicate, or of carbonate, e.g., a sodium salt.

The source of alkalinity can be present in a use dilution of the composition at about 0

to about 1 wt-%, about 0.01 to about 0.5 wt-%, about 0.045 to about 0.18 wt-%, about 0.02 to about 0.36 wt-%, about 0.01 to about 0.72 wt-%, or about 0.05 to about 0.15 wt-%. The source of alkalinity can be present at any of these amounts not as part of a range and/or at any of these amounts not modified by about.

Acids or Acidulants

The composition employed in the present method can include one or more ingredients to decrease the pH, e.g. one or more acids or acidulants. Suitable acids include organic and inorganic acids. For example, suitable inorganic acids include phosphoric acid, hydrochloric acid, nitric acid, sulfuric acid, sulfamic acid, mixtures thereof, or the like. For example, suitable organic acids include lactic acid, citric acid, propionic acid, acetic acid, hydroxyacetic acid, formic acid, glutaric acid, malic acid, hydroxy propionic acid, succinic acid, glutaric acid, adipic acid, fumaric acid, mixtures thereof, or the like. The organic acid can be a mixture of adipic, malic, and succinic acids sold under the tradename Sokalan. In an embodiment, the acid includes phosphoric acid, lactic acid, or a mixture thereof. In an embodiment, the acid includes phosphoric acid, lactic acid, hydroxyacetic acid, or a mixture thereof. In an embodiment, the acid includes citric acid, lactic acid, urea hydrochloride, or a mixture thereof.

The acidulant or acid can be present in the composition at about 0 to about 1 wt-%, about 0.1 to about 0.5 wt-%, about 0.045 to about 0.18 wt-%, about 0.02 to about 0.36 wt-%, about 0.01 to about 0.72 wt-%, or about 0.05 to about 0.15 wt-%. The acidulant or acid can be present at any of these amounts not as part of a range and/or at any of these amounts not modified by about.

Wetting or Defoaming Agent

Also useful in the composition of the invention are wetting and defoaming agents. Wetting agents function to increase the surface contact or penetration activity of the composition employed in the method of the invention. Wetting agents, which can be used in the composition of the invention, include any of those constituents known within the art to raise the surface activity of the composition of the invention.

Along these lines, surfactants, and especially nonionic surfactants, can also be useful

in the present invention. Nonionic surfactants, which can be useful in the present invention, are those which include ethylene oxide moieties, propylene oxide moieties, as well a mixtures thereof, and ethylene oxide-propylene oxide moieties in either heteric or block formation. Additionally useful in the present invention are nonionic surfactants which include an alkyl ethylene oxide compounds, alkyl propylene oxide compounds, as well as mixtures thereof, and alkyl ethylene oxide-propylene oxide compounds where the ethylene oxide propylene oxide moiety is either in heteric or block formation. Further useful in the present invention are nonionic surfactants having any mixture or combination of ethylene oxide-propylene oxide moieties linked to a alkyl chain where the ethylene oxide and propylene oxide moieties can be in any randomized or ordered pattern and of any specific length. Nonionic surfactants useful in the present invention can also include randomized sections of block and heteric ethylene oxide propylene oxide, or ethylene oxide-propylene oxide, such as ethylene diamine ethylene oxides, ethylene diamine propylene oxides, mixtures thereof, and ethylene diamine EO-PO compounds, including those sold under the tradename Tetronic. An exemplary wetting agent is sodium lauryl sulfate.

The composition used in the methods of the invention can also contain additional ingredients as necessary to assist in defoaming.

Generally, defoamers which can be used in accordance with the invention include silica and silicones; aliphatic acids or esters; alcohols; sulfates or sulfonates; amines or amides; halogenated compounds, such as fluorochlorohydrocarbons; vegetable oils, waxes, mineral oils as well as their sulfated derivatives; fatty acid soaps such as alkali, alkaline earth metal soaps; and phosphates and phosphate esters such as alkyl and alkaline diphosphates, and tributyl phosphates among others; and mixtures thereof.

The wetting agent or defoaming agent can be present in the composition at about 0 to about 1 wt-%, about 0.1 to about 0.5 wt-%, about 0.035 to about 0.14 wt-%, about 0.02 to about 0.21 wt-%, about 0.015 to about 0.28 wt-%, about 0.01 to about 0.49 wt-%, or about 0.05 to about 0.10 wt-%. The wetting agent or defoaming agent can be present at any of these amounts not as part of a range and/or at any of these amounts not modified by about.

Dyes/Odorants

Various dyes, odorants including perfumes, and other aesthetic enhancing agents may also be included in the composition. Dyes may be included to alter the appearance of the composition, as for example, Direct Blue 86 (Miles), Fastusol Blue (Mobay Chemical Corp.), Acid Orange 7 (American Cyanamid), Basic Violet 10 (Sandoz), Acid Yellow 23 (GAF), Acid Yellow 17 (Sigma Chemical), Sap Green (Keyston Analine and Chemical), Metanil Yellow (Keystone Analine and Chemical), Acid Blue 9 (Hilton Davis), Sandolan Blue/Acid Blue 182 (Sandoz), Hisol Fast Red (Capitol Color and Chemical), Fluorescein (Capitol Color and Chemical), Acid Green 25 (Ciba-Geigy), Pylaklor Pink LX-10613, and the like.

Fragrances or perfumes that may be included in the compositions include, for example, terpenoids such as citronellol, aldehydes such as amyl cinnamaldehyde, a jasmine such as C1S-jasmine or jasmal, vanillin, and the like.

Polishing

The hard surface to be polished can include any surface that requires polishing. Such hard surfaces include tires, bumpers on vehicles, plastic, tire rims, elevators, countertops, formica, sinks, faucets, and kitchen appliances.

Exemplary industries that may use the present invention are the food industry, the transportation industry (e.g. cars, trucks, boats, aircraft), the restaurant industry, the hospitality industry (e.g., hotels, motels), consumer industry, healthcare industry (e.g. hospitals, nursing homes, dental and medical offices), and schools.

Depending upon the formulation, the composition of the invention can be a liquid, semi-liquid, gel, dispersion, paste, foam, powder, or solid, and can be in the form of a concentrate or ready-to-use formulation. The composition generally has a capability of being used on a wide range of surfaces.

The present invention includes a broad variety of polishing applications. Some examples include manual or machine polishing and the like. The methods may be used manually, with hand operated polishing equipment or in automatic polishing equipment.

Exemplary application techniques include low pressure application, hand pressure application, water jet spray apparatus or other manual or mechanical application methods and systems can be used, depending upon the form of the composition. Some embodiments of

the invention include applying composition, allowing to dry, and then removing or buffing off. Other embodiments are applied and worked into the surface immediately.

The composition can be applied to the hard surface by pouring the composition onto the hard surface directly or onto a cloth or rag, which is then used to wipe the hard surface. The composition can be sprayed onto the surface as a liquid, foam, or aerosolized liquid. The composition is then spread over the entire hard surface by wiping the hard surface with a cloth or rag, spreading the composition over the entire hard surface. The cloth or rag can include the composition or spread the composition that has been poured directly onto the hard surface. Exemplary wiping motions can be circular, zigzag, or back and forth. The excess polish can be removed by wiping a new rag or cloth or the existing rag or cloth over the excess polish.

The composition can also be contained within a liquid tight container. The container can include directions. The directions can include directions on how to apply the composition or use the composition as a polish. The container can also include a wet wipe that is impregnated or saturated with the composition. The container can also include a label identifying the container, such as a polish holding container.

The method of polishing can include rinsing. Typically rinsing means removing any excess composition from the hard surface to be polished. Exemplary rinsing steps include the use of a liquid, such as water. The water is contacted with the hard surface to remove any excess composition.

The present invention may be better understood with reference to the following examples. These examples are intended to be representative of specific embodiments of the invention, and are not intended as limiting the scope of the invention.

EXAMPLES

Example 1

Various solutions of propylene glycol in water were prepared and tested as a polish on a stainless steel door of a dishwasher. The concentration had an impact on performance in terms of overall gloss and whether or not streaking occurs. For instance, the 30 % by weight propylene glycol had slight streaking and good gloss behavior. Good gloss behavior means an individual can discern 15 point letters in a reflection that is 6 inches from the hard surface,

but the reflection is not crisp or well defined. The 50 % by weight propylene glycol had no streaking and excellent gloss behavior. Excellent gloss behavior means an individual can discern 15 point letters in a reflection that is 6 inches from the hard surface, and the reflection has crisp edges and is well defined.

Table 1 - Results of Propylene Glycol as a polish

% Propylene Glycol	Streaking	Gloss*
1	severe	poor
20	moderate	poor
30	slight	good
50	none	excellent

* poor gloss = cannot discern individual letters of a 15 point print word in reflection from 6"
good gloss = can discern individual 15 point letters but not crisp and well defined
excellent gloss = each 15 point letter has crisp edges and is well defined

Example 2

The following composition is an exemplary composition that may be used according to the present invention.

Example 2

Weight %	Material
58.655	Deionized water
40.000	Propylene glycol
0.050	Acusol 460N, 25%
0.900	N-propoxypropanol
0.095	Monoethanolamine, 99%
0.005	Pluronic N3
0.245	Sodium Lauryl Sulfate, 30%
0.050	Tetrasodium EDTA, 40 %

Example 3

The following composition is an exemplary composition that may be used according to the present invention.

Example 3

Weight %	Material
1	Pluronic N3
99	Deionized water

Example 4

The following composition is an exemplary composition that may be used according to the present invention.

Example 4

Weight %	Material
50	Propylene glycol
50	Deionized water

Example 5

The following composition is an exemplary composition that may be used according to the present invention.

Example 5

Weight %	Material
1	Propylene glycol (2000 molecular weight)
99	Deionized water

It should be noted that, as used in this specification and the appended claims, the singular forms "a," "an," and "the" include plural referents unless the content clearly dictates otherwise. Thus, for example, reference to a composition containing "a compound" includes a mixture of two or more compounds. It should also be noted that the term "or" is generally employed in its sense including "and/or" unless the content clearly dictates otherwise.

All publications and patent applications in this specification are indicative of the level of ordinary skill in the art to which this invention pertains.

The invention has been described with reference to various specific and preferred embodiments and techniques. However, it should be understood that many variations and modifications may be made while remaining within the spirit and scope of the invention.